QUAD

II–*forty* &
QC–*twenty four*
Valve Amplification System

Owner’s Manual

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Important Safety Precautions - Please Read Carefully!

CAUTION

RISK OF ELECTRIC SHOCK - DO NOT OPEN!

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated dangerous voltage within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

SAFETY INFORMATION

CAUTION: TO PREVENT ELECTRICAL SHOCK, MATCH WIDE BLADE OF PLUG TO WIDE SLOT, FULLY INSERT.

ATTENTION: POUR ÉVITER LES CHOCS ELECTRONIQUES INTRODUIRE LA LAME LA PLUS LARGE DE LA FICHE DANS LA BORNE CORRESPONDANTE DE LA PRISE ET POUSSER JUSQU'A FOND.

CAUTION: FOR CONTINUED PROTECTION AGAINST RISK OF FIRE REPLACE FUSE ONLY WITH SAME TYPE AND RATING.

ATTENTION: UTILISER UN FUSIBLE DE RECHANGE DE MEME TYPE ET CALIBRE.

WARNING: SHOCK HAZARD - DO NOT OPEN.

AVIS: RISQUE DE CHOC ELECTRIQUE - NE PAS OUVRIR.

Read Instructions: All the safety and operating instructions should be read before the product is operated.

Retain Instructions: The safety and operating instructions should be retained for future reference.

Heed Warnings: All warnings on the product and in the operating instructions should be adhered to.

Follow Instructions: All operating and use instructions should be followed.

Cleaning: Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.

Attachments: Do not use attachments not recommended by the product manufacturer as they may cause hazards.

Water and Moisture: Do not use this product near water - for example, near a bath tub, wash bowl, kitchen sink, or laundry tub, in a wet basement; or near a swimming pool; and the like.

Accessories: Do not place this product on an unstable cart, stand, tripod, bracket, or table. The product may fall, causing serious injury to a child or adult, and serious damage to the product. Use only with a cart, stand, tripod, bracket or table recommended by the manufacturer, or sold with the product. Any mounting of the product should follow the manufacturer's instructions, and should use a mounting accessory recommended by the manufacturer.

Moving the Product: A product and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the product and cart to overturn.

Ventilation: Slots and openings in the cabinet are provided for ventilation and to ensure reliable operation of the product and to protect it from overheating, and these openings must not be blocked or covered. The openings should never be blocked by placing the product on a bed, sofa, rug, or other similar surface. This product should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided or the manufacturer's instructions have been adhered to.

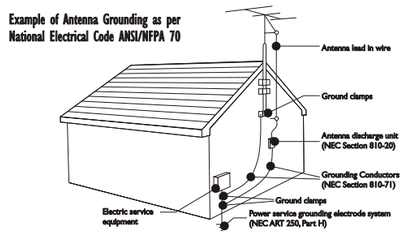
Power Supply Cords: Power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the product.

Power Sources: This product should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supply to your home, consult your product dealer or local power company. For products intended to operate from battery power, or other sources, refer to the operating instructions.

Polarisation: This product is equipped with a polarized alternating-current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug.

Lightning: For added protection for this product during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the product due to lightning and power-line surges.

Antenna Grounding: If an outside antenna or cable system is connected to the product, be sure the antenna or cable system is grounded so as to provide some protection against voltage surges and built-up static charges. Article 810 of the National Electrical Code, ANSI/NFPA 70, provides information with regard to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna-discharge unit, connection to grounding electrodes, and requirements for the grounding electrode. (Refer to diagram)


Example of Antenna Grounding as per National Electrical Code ANSI/NFPA 70
Antenna lead in wire
Ground clamps
Antenna discharge unit (NEC Section 810-20)
Grounding Conductors (NEC Section 810-71)
Ground clamps
Electric service equipment
Power service grounding electrode system (NEC ART 250, Part H)

Power Lines: An outside antenna system should not be located in the vicinity of overhead power lines or other electric light or power circuits, or where it can fall into such power lines or circuits. When installing an outside antenna system, extreme care should be taken to keep from touching such power lines or circuits as contact with them might be fatal.

Overloading: Do not overload wall outlets, extension cords, or integral convenience receptacles as this can result in a risk of fire or electric shock.

Object and Liquid Entry: Never push objects of any kind into this product through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock.

Heat: The product should be situated away from heat sources such as radiators, heat registers, stoves, or other products (including amplifiers) that produce heat.

Servicing: Do not attempt to service this product yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

Damage Requiring Service: Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:

a) When the power supply-cord or plug is damaged.

b) If liquid has been spilled, or objects have fallen into the product.

c) If the product has been exposed to rain or water.

d) If the product does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to its normal operation.

e) If the product has been dropped or damaged in any way.

f) When the product exhibits a distinct change in performance - this indicates a need for service.

Replacement Parts: When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or have the same characteristics as the original part. Unauthorised substitutions may result in fire, electric shock, or other hazards.

Safety Check: Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in proper operating condition.

Warning: To resist the risk of fire or electrical shock, do not expose this product to rain or moisture. The product must not be exposed to dripping and splashing and no object filled with liquids - such as a vase of flowers - should be placed on the product.

No naked flame sources - such as candles - must be placed on the product.

Service: Equipment for sevicing should be returned to the suplying dealer, or to the appointed service agents for your territory. The addresses of the appointed Service Agents for the UK , USA and Canada are listed on the inside rear cover of this manual.

Authorised QUAD Service Centres in the U.K. and North America

USA

IAG America, Inc.
180 Kerry Place
Norwood
MA 02062
Tel: +1 781 440 0888

CANADA

Korbon Trading Ltd
6800 Kitimat Road
Units 19-20
Mississauga
Ontario
Tel: +1 905 567 1920

U.K.

QUAD Electroacoustics Ltd.
IAG House, Sovereign Court,
Ermine Business Park,
Huntingdon,
Cambs PE29 6XU,
England.
Tel:+44 (0)1480 447700
Fax:+44 (0)1480 431767

For information on authorised service centres worldwide contact QUAD Electroacoustics Ltd. in the U.K.

A worldwide distributor list is available on the QUAD website:

www.quad-hifi.co.uk

SPECIFICATIONS

QC · *twenty four*

Valve preamplifier

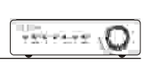
Valve complement	1x 6111 twin triode
THD @ 1V RMS	< 0.2%
Frequency Response	5 Hz - 50 KHz (+0 dB/-0.5 dB)
Hum and Noise	Better than - 80 dB
Line stage gain	15 dB
Recommended minimum load	50 k Ohms
Inputs	5 x Line level*
	2 x Buffered tape loops
Power Consumption	15 VA maximum

* Note: Phono input is line level until optional phono stage is added

II · *forty*

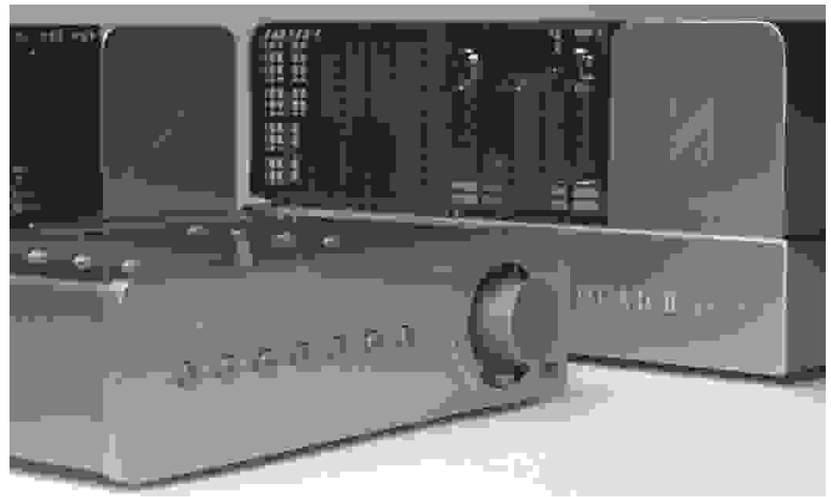
Monobloc valve power amplifier

Power output	40W RMS
THD @ 700 Hz	0.3% @ 40W
	0.03% @ 1W
Residual hum and noise	Better than -80 dB
Frequency response	10 Hz - 30 kHz (+0 dB/-0.5 dB)
Damping factor	20 @ 700 Hz (referred to 8 Ohms)
Power consumption	180VA maximum
Loudspeaker taps	4 and 8 Ohms
Valves	2 x 6SH7 Input
	2 x KT88 Output
	1 x 5U4G Rectifier
Input sensitivity	1V RMS



QUAD

QC · *twenty four*
II · *forty*



The QUAD II – *forty* power amplifier is a direct descendant of the legendary QUAD II amplifier designed by Peter Walker, founder of QUAD and one of the guiding lights of early Hi-Fi reproduction. Like the QUAD II, the QUAD II – *forty* uses the uniquely simple and timeless circuit topology developed by Walker.

The modern listener demands a higher power output than the 15W of the original QUAD II. The new QUAD II – *forty* uses larger output valves and a more robust power supply and the input valves have been upgraded to military grade devices. Whilst the QUAD II – *forty* retains the layout and styling of the QUAD II, the chassis size has been increased to take the substantially larger components including mains and output transformers.

The QC – *twenty four* preamplifier uses a radically new and functionally simple audio circuit and features relay input switching to preserve signal purity. With modern high quality recording and reproduction equipment tone controls are now redundant and so the QC *twenty four* dispenses with them. The styling of the QC – *twenty four* is classic QUAD and matches the QUAD II – *forty.*

The QC – *twenty four* and QUAD II – *forty* are designed for the music lover. We make no exaggerated performance claims and are content to let the results speak for themselves.

Thank you for purchasing this QUAD equipment. We can only hope that it will bring you many years of listening pleasure, and that, like its illustrious predecessor, it will be a treasured possession for you and for future generations of music lovers.

ADDITIONAL INFORMATION

Running In

Most high fidelity equipment works better after it has been run in for some time. In the case of valve amplifiers the period of running in is much more important. Components that go into valve equipment work at voltages and temperatures far higher than their solid-state counterparts and when new they should spend an extended period at those working temperatures to bed in properly. This is especially the case with the output valves and the output transformer.

We recommend an initial running in period of at least four and preferably twelve hours before you first use the equipment. If you decide to run in your equipment for an extended period, make doubly sure that all the safety conditions covered in this manual are fully met. Supervise the equipment for the first hour or so and if you have to leave the equipment unattended thereafter, have someone to look in every so often to make sure all is well.

The patience and care that you devote in these initial stages will be amply rewarded by many years of outstanding performance from your QUAD valve equipment.

Valve lifetimes

Valves contain a heating element. This heats up the valve's cathode, which is specially coated to give off a steady stream of electrons. This coating will eventually become exhausted and the valve's performance will deteriorate. In the QUAD II – *forty* power amplifier the KT88 output valves are most likely to deteriorate first but the 6SH7driver valves will also eventually wear out. As the valves start to wear out the sound will become softer and less well defined and a lack of dynamics and power will become evident.

The KT88s should last over 6,000 hours and the 6SH7s 15,000 hours of listening but a longer life can be expected. The 6111WA used in the QC - *twenty four* is a military type with a lifetime of 60,000 to 100,000 hours so it should not need to be replaced for a long time into the future.

When replacing valves it is essential to use the highest quality available. Poorly manufactured KT88s will adversely affect the sound quality and may damage the amplifier. Before the amplifiers leave the factory they are fitted with balanced sets of valves to ensure optimum performance.

These tests are performed with sophisticated analysis equipment so, to ensure that your amplifiers always perform as they were intended, please return them to an authorised QUAD Service Department for servicing.

Output Transformer

The output transformer is the most expensive component in a valve power amplifier. It is designed to match the high voltage, low current conditions in which output valves operate to the low voltage high current requirements of a loudspeaker. Although robust and capable of lasting a lifetime, an output transformer can be damaged and, in extreme cases wrecked, by careless use.

If you operate a solid-state amplifier into a short circuit something dramatic is likely to happen fairly quickly. If you play a valve amplifier into a short circuit, the output transformer will soak up a lot of energy before failing but if the short persists the transformer could be damaged catastrophically.

Paradoxically, operating a valve amplifier at high output levels with *no* loudspeaker connected can damage an output transformer. The analogy here is to an engine racing away with no load - sooner or later it will burn out.

IMPORTANT NOTES

European Union Directives:

QUAD equipment is designed to comply with the legal provisions of EU Directives 89/336/EC and 72/23/EEC. The standards that have been applied were those in force at the time of the introduction of the product.

The product bears the CE mark CE

Compliance cannot guarantee perfect performance. In the very rare circumstance that you experience problems you should first try to locate and remedy the origin of any disturbance. A further option is to relocate the QUAD equipment in order to reduce the interference. Your dealer should be able to provide assistance if the problem persists.

FCC Rule 15 Class B:

This equipment has been tested and complies with the limits for a Class B device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a mains circuit different to that to which the receiver is attached.

Consult the dealer or an experienced Radio/TV technician for help.

Information to the user:

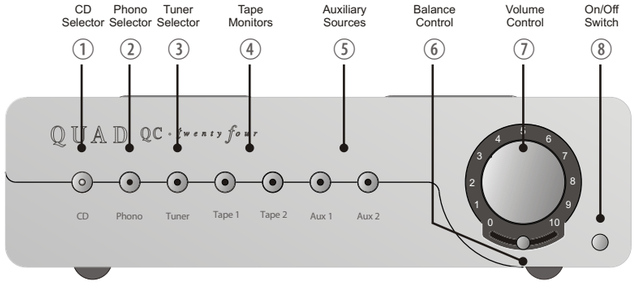
Alteration or modifications carried out without appropriate authorisation may invalidate the user's warranty.

It is always good practice to switch off equipment before connecting or disconnecting signal leads. This will prevent unpleasant and loud noises coming from the loudspeakers and avoid the risk of damage to equipment. It is important that any unit connected to this equipment is earthed according to the manufacturer's instructions. This becomes more important as the number of units that are connected together increases.

Noise Pollution:

Please be aware that very high sound pressure levels can cause permanent damage to your hearing and also severe annoyance to neighbours.

OPERATION



Switching On

The mains switch ⑧ on the QC – *twenty four* is a 'push ON push OFF' type. When the switch is depressed power is applied, when released, the power is switched off.

- Switch on the required source component.
- Switch on the preamplifier via the ON/OFF switch ⑧. The indicator on the CD selector button will light.
- Now switch each power amplifier on via the switch ① on the rear of the unit. You will see the valves begin to glow.

Warming Up

Valve amplifiers need time to reach their correct operating temperature. Allow at least fifteen minutes for the amplifiers to 'warm up' before use. Warming up should always be done with the volume control at zero.

If you play loud music while the system is cold the output valves will not be fully operational and the amplifier will be starved of both voltage and current. The resulting distortion is both unpleasant to listen to and potentially damaging to both the amplifiers' valves and your loudspeakers. Intensive use of this equipment before it has properly warmed up will also shorten the life of your output and rectifier valves.

These factors should especially be borne in mind if you are using sensitive high performance loudspeakers such as QUAD Electrostatics.

Selecting a Source

The CD, Tuner, Aux 1 and Aux 2 selector buttons, ① ③ and ⑤, operate identically. Depressing any of these buttons plays the relevant source.

Any of the above inputs can be used to play any audio line level source regardless of the description on the unit's front panel.

As supplied from the factory, the Phono selector ② is also a line level input and operates in identical fashion to the above inputs.

CD Input

The CD input ① is the default input. Regardless of the source that is in use when you switch the preamplifier off, when you next switch on the unit will automatically select the CD input.

Switching off the preamplifier will also reset any selected Tape Monitor to OFF.

GUARANTEE AND PRODUCT REGISTRATION

Your QUAD equipment is guaranteed against any defect in material and workmanship for a period of one year from the date of purchase with the exception of the valves, which are warranted for three months. Proof of purchase is required for Warranty claims.

Please complete and return the enclosed Warranty registration form. Within the warranty period QUAD will undertake replacement of defective parts free of charge provided that the failure was not caused by misuse, accident or negligence. Your statutory rights within the territory in which you purchased the equipment are not affected by this warranty.

QUAD carries out a regular review of its products and reserves the right to adjust the specifications and performance from time to time.

There are no user replaceable or serviceable parts inside this equipment. Unauthorised attempts to service or modify this product will void the warranty.

SERVICE ARRANGEMENTS

If your QUAD equipment requires servicing (including valve replacement) you should return it to the dealer from whom the equipment was purchased.

If you are abroad and there is no suitable dealer in your area, please contact the distributor for the country in which it was purchased or QUAD Electroacoustics Ltd.

It is user's responsibility, whether the equipment is under warranty or otherwise, to ensure that equipment for service is returned carriage paid and in the original packaging. You should enclose a brief note with your name and address and the reason for returning the equipment.

ACCESSORIES

The following optional accessories are available.

Accessory Description	Part No.
IEC mains cable 2m, fitted with UK plug	QUKES2B
IEC mains cable 2m, fitted with European plug	QU2P2S2
Double ended RCA phono cable 500mm	QP2P2SA
Double ended RCA phono cable 1m	QP2P21A
Double ended RCA phono cable 2m	QP2P22A

Note: We do not supply loudspeaker cables terminated with 4mm plugs, nor the plugs themselves.

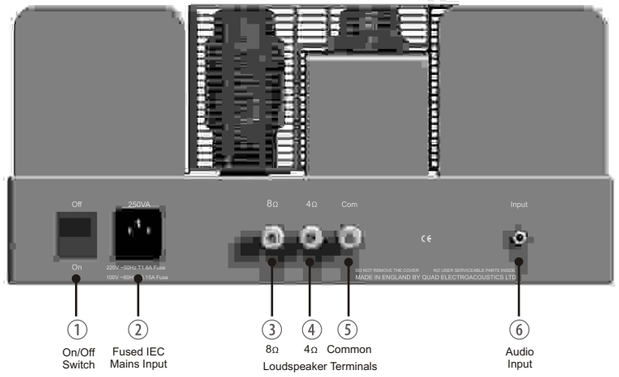
CARE AND CLEANING

The surface of the equipment may be cleaned with a damp cloth provided that the power has been removed first. Solvent based cleaning materials should not be used as they may damage the paint finish.

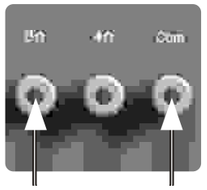
SAFETY AND OPERATION OF ELECTRICAL PRODUCTS

Misuse of electrical products carries the risk of electrical shock. Your QUAD equipment is intended for use in a domestic environment. Ensure that all electrical connections are securely and competently made to the unit before power is applied. Protect access to the rear of the equipment by careful placement. Note that the voltage output of the power amplifiers can reach high peak levels and that metal parts, such as loudspeaker connectors, must not be touchable while the equipment is powered.

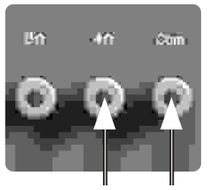
Connecting the QUAD II – *forty* power amplifiers



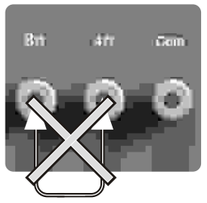
Connecting loudspeakers to the QUAD II – *forty* (refer to figs. ③ - ⑥ above)



7Ω – 16Ω



3Ω – 6Ω



Valve power amplifiers require matching to the loudspeaker for optimum performance. The QUAD II – *forty* has three output terminals – Common, 4 Ohms and 8 Ohms. Check the manufacturer's handbook for your speakers and use the terminal pair that most closely matches your speakers. Even though a loudspeaker may be broadly defined as 8 Ohms or 4 Ohms its overall impedance varies throughout the audio frequency range so some experimentation may be necessary to achieve the best sonic performance.

The following general provisions apply:

For loudspeakers with nominal impedance of 7 Ohms and above:

- Connect the Red (Positive) terminal of the loudspeaker to the 8 Ohm terminal.
- Connect the Black (Negative) terminal of the loudspeaker to the COM terminal of the QUAD II – *forty* amplifier.

For loudspeakers with nominal impedance between 3 and 6 Ohms:

- Connect the Red (Positive) terminal of the loudspeaker to the 4 Ohm terminal.
- Connect the Black (Negative) terminal of the loudspeaker to the COM terminal of the QUAD II – *forty* amplifier.

Some basic cautions:

- NEVER drive loudspeakers using the 4 and the 8 Ohm terminals together and NEVER short these terminals out.
- NEVER connect or disconnect loudspeaker cables whilst the QUAD II – *forty* is switched on.

Connecting cables to the QUAD II – *forty* loudspeaker terminals:

- Strip any outer sleeve from the cable to a depth of around 40 mm (1.5”).
- Strip the top 7mm of sleeving to expose the bare wire.
- If you are using stranded cable, lightly twist the strands to gather any loose ends.
- Partially unscrew the knurled portion of the terminal to expose the cross hole at the terminal base.
- Push the bare end of the cable into the hole. Ensure that the polarity is correct and there are no loose strands which could touch adjacent terminals.
- Tighten securely.

INSTALLATION

If this is your first valve amplifier please familiarise yourself with some issues surrounding the safe use of the QC – *twenty four* and QUAD II – *forty*.

Valves get hot

Valves (tubes) function by thermionic emission, which requires heat. Additionally, the power amplifiers generate a lot of heat even with no input. Therefore it is vital to ensure adequate ventilation for your valve equipment especially power amplifiers.

The power amplifiers should be placed upon a hard flat surface to allow air to flow into and around the base and valves. As rising hot air from the large output valves will heat anything placed above, the QUAD II – *forty* power amplifiers should not be placed on a rack; each unit should be on its own well-ventilated platform with at least 1m (3ft.) of free space above it.

Although the cage over the QUAD II – *forty's* valves gets hot it is very unlikely to cause a burn. For absolute safety the units should be placed out of the reach of children and pets and away from heat-sensitive objects.

The QC – *twenty four* may be placed in an equipment rack, but ensure that there is plenty of free space around the unit for good ventilation and that any component placed above it is at least 200mm (8”) away.

Valve amplifiers work with high voltages

There are high voltages present within these components, as valves require a high voltage to function. Do not open any of the cases. Also ensure that nothing is poked, dropped or poured into an amplifier's case.

The environment should be dry and free from litter. You should not place or store magnetically or thermally sensitive objects (such as credit cards or optical discs) close to these QUAD units.

Valves are microphonic

Because valves are constructed from fine wires and tiny metal parts they can pick up external vibrations. For that reason a good, solid isolation support is recommended. If you place the power amplifiers too close to the speakers the direct loud sound can vibrate the valves. 1 metre (3ft) to the side of each speaker should be considered a sensible minimum.

Valve amplifiers prefer high impedances

Solid-state power amplifiers have a typical input impedance of 10k Ohms. This is really too low for a traditional valve preamplifier. The recommended minimum load impedance for the QC – *twenty four* is 50k Ohms.

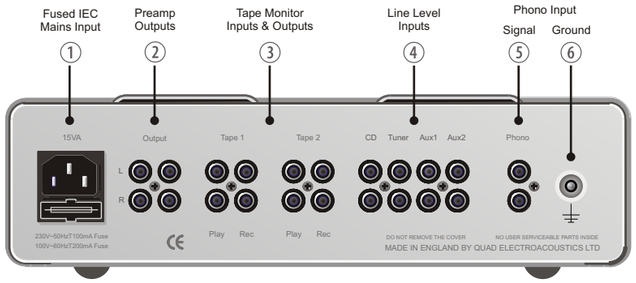
The QC – *twenty four* will function well with most if not all valve amplifiers, and the QUAD II – *forty* will function with virtually any preamplifier.

Interconnects and Cables

Cables that are used with QUAD equipment should be properly terminated and appropriate to the task.

To connect the QC – *twenty four* to the QUAD II – *forty* amplifier the equipment uses RCA phono plugs at each end of a screened cable. Such cables are also used to connect the QC – *twenty four* to other audio sources. Interconnects are electrically capacitive. In other words, their impedance starts to drop with increasing frequency. A limit of 10ft (3m) should be placed upon the length of interconnect between the QC – *twenty four* and QUAD II – *forty*. This will also minimise noise pickup in the cables.

Connecting the QUAD QC – *twenty four* Preamplifier Control Unit



When making stereo connections from the QC – *twenty four* to source components or to power amplifiers, plugs and sockets coded *white* or *black* usually indicate the LEFT channel and those coded *red* the RIGHT channel. In a stereo pair the upper socket is usually the Left Channel and the lower socket the Right. If you are in any doubt, consult a qualified dealer.

Connecting Source Components (refer to fig. ④ on the drawing above)

Virtually any line level audio source component may be connected to the line level inputs ④. These include tuners, CD players etc. When the QC – *twenty four* is switched on, the CD input will always be selected first.

To connect a source component to the QC – *twenty four*:

- Connect a pair of high quality screened cables terminated in RCA phono plugs from the LINE OUTPUT of the source component to the chosen input of the QC – *twenty four*.

Connecting Recording Equipment (refer to fig. ③ on the drawing above)

To connect an audio recorder:

- Connect a suitable pair of RCA phono cables from the LINE IN or REC sockets of the recorder to the REC sockets of Tape 1 or Tape 2 of the QC – *twenty four*.
- Connect another pair of RCA phono cables from the LINE OUT or PLAY sockets of the recorder to the PLAY sockets of Tape 1 or Tape 2 of the QC – *twenty four*.

Connecting a Turntable (refer to figs. ⑤ and ⑥ on the drawing above)

As supplied, the PHONO input of the QC – *twenty four* is a line level input and operates exactly as the other preamplifier line inputs. You cannot connect a regular turntable to this input as supplied. An optional RIAA module will be available in due course to enable the phono input to be fully operational with a standard phono cartridge. If you have an external phono preamplifier with an output at line level, you may connect the output of that unit to the PHONO input of the QC – *twenty four* as supplied.

To connect a turntable to a QC – *twenty four* fitted with an RIAA module:

- Connect the phono leads from the tonearm (or from the phono output sockets) of the turntable assembly to the PHONO inputs ⑤ of the QC – *twenty four*.
- If there is a ground wire on your turntable (and/or arm) connect this to the Ground terminal ⑥ of the QC – *twenty four*. If your turntable has a ground terminal, connect this to the Ground terminal ⑥ of the QC – *twenty four* with a single wire.

To connect a cable to the Ground terminal:

- Partially unscrew the top section of the terminal. Strip about 8mm of insulation from the ground wire and curl the bared end *clockwise* around the terminal post. Tighten securely, but do not overtighten.

Connecting the QC – *twenty four* to a power amplifier (refer to fig. ② on the drawing above)

The QC – *twenty four* is provided with two preamplifier outputs. These are identical in specification and are provided solely for the purposes of bi-amplifying in conjunction with a second pair of QUAD II – *forty* power amplifiers. They should not be used to run a second pair of amplifiers in a remote location as the lumped effect of long cable runs and low impedance loading may seriously impair the system's high frequency performance.

Caution! Always make sure that the preamplifier, all associated source units and especially the power amplifiers are switched off at the mains when connecting or disconnecting power amplifiers or any source components.

To connect a stereo or two monobloc power amplifiers:

- Connect a pair of high quality screened cables terminated in RCA phono plugs from the chosen pair of OUTPUT sockets (fig. ②) of the QC – *twenty four* to the line input of the power amplifier.

Note: Some power amplifiers have two sets of line input sockets, one pair going via a volume control or other attenuator internal to the power amplifier, one going direct to the power amplifier inputs. In all such cases the direct input is the preferred choice.

Refer to Page 11 for connections to the QUAD II – *forty* power amplifiers.

MAINS WORKING VOLTAGE AND FUSE RATINGS

The rated voltage for this unit is marked on the rear panel. Please check with the dealer if you intend to use the equipment in regions which use different values of mains voltage.

QUAD manufactures equipment to the following nominal mains voltages.

230VAC - Europe & UK 115VAC - USA, etc

100VAC - Japan, etc 220VAC - Korea, etc

If you are in any doubt what the voltage is in your area you should ask a qualified electrician before applying power to the equipment. Your QUAD equipment will work within standard tolerances of the nominal voltage.

- **QUAD II –** ***forty.*** The mains supply fuse is on the rear panel and accessible when the IEC mains plug is removed. If it has broken you should check for any obvious cause before replacing the fuse with one of the correct rating and type.
- **QUAD QC –** ***twenty four.*** The mains supply fuse is on the rear panel and accessible when the IEC mains plug is removed. If it has broken you should check for any obvious cause before replacing the fuse with one of the correct rating and type.

The mains supply fuse ratings for each product are listed in the table below:

Region	Nominal Voltage	Fuse Rating QUAD II – *forty*	Fuse Rating QUAD QC – *twenty four*
Europe	**230VAC**	T1.6AL Slow Blow 5x20mm	T100mAL Slow Blow 5x20mm
USA	**115 VAC**	T3.15AL Slow Blow 5x20mm	T200mAL Slow Blow 5x20mm
Japan	**100VAC**	T3.15AL Slow Blow 5x20mm	T200mAL Slow Blow 5x20mm
Korea	**220VAC**	T1.6AL Slow Blow 5x20mm	T100mAL Slow Blow 5x20mm

MAINS CONNECTIONS

QUAD equipment supplied in Europe is provided with a mains cable fitted with an appropriate mains plug. This plug should not be cut from the cable or used with its fuse cover removed. If, for any reason, the plug is removed, it must be safely disposed of. It must ***never*** be re-used.

A replacement plug should be wired to the supplied mains cable as follows:

- The **Brown** wire must be taken to the **LIVE** terminal.
- The **Blue** wire must be taken to the **NEUTRAL** terminal.
- The **Green/Yellow** wire must be taken to the **EARTH** terminal.

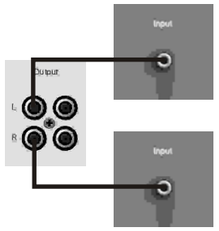
In the UK a fused 13 Amp mains plug should be fitted with a fuse link rated at 5 Amps. In other countries a value between 10 and 15 Amps should be used at either the wall socket or the mains distribution board.

When you are trimming or cutting cables and wires you should prevent the waste parts from falling onto or into any electrical equipment. If you are in any doubt you should consult a qualified electrical engineer.

The power supply input to your QUAD equipment is via an IEC mains connector and an appropriate mains lead is supplied. For optimum performance each unit should be connected to a properly installed mains power socket. If you need to use a mains distribution unit, please ensure that it is a safety-approved unit of appropriate rating and that it is used exclusively to supply audio components.

These QUAD components must be connected to an earthed (grounded) AC supply. If you are uncertain if the mains supply in your house is efficiently earthed, you should consult a qualified electrical engineer.

Connecting the QUAD QC – *twenty four* to the QUAD II – *forty* (refer to fig. ⑥ above)



Decide which of the two power amplifiers is to be the left channel and which the right channel and place the units in their intended locations having regard to the suggestions on page 7.

- Using an appropriate screened RCA phono cable, connect the INPUT socket ⑥ of each QUAD II – *forty* to the requisite OUTPUT socket (fig. ② page 8) of the QC – *twenty four*.
- The interconnect leads should be the same length regardless of the placement of the power amplifiers relative to the preamplifier.
- Take care when running signal cables to keep them away from sources of interference and noise.
- Do not run signal cables parallel to mains cables or lines carrying digital traffic.

FINAL SYSTEM CONNECTIONS

When all the sources have been connected, the power amplifiers are fully connected to the loudspeakers and the preamplifier, and all system connections have been double-checked, the final process is to connect the mains. Ensure that the mains switches ① on the rear panels of the QUAD II – *forty* power amplifiers are switched OFF.

- Ensure that the ON/OFF switch on the front panel of the QC – *twenty four* is set to the OFF (fully extended) position.
- Ensure that the volume control on front panel of the QC – *twenty four* is at the minimum (fully anticlockwise) position.
- Plug the three supplied IEC leads into their respective mains input sockets on each QUAD unit.
- Plug the IEC leads into the wall sockets and switch these sockets on.
- Plug in the mains leads and switch on the power to your source units.
- The system is now fully connected and ready for operation.

INTRODUCTION

You should read the following useful notes before you begin to install and use the equipment. The notes are directed to the person who is responsible for the safe installation of the equipment. Minors should not attempt to install equipment or to carry out changes to electrical installations.

The QUAD QC – *twenty four* & QUAD II – *forty* is a valve amplification system of impeccable performance intended for the highest possible standard of music reproduction in the home. As the twin monaural power amplifiers are capable of generating extremely high power outputs it is particularly important that you read the following instructions with care. Although this equipment has primarily been designed for use with QUAD components, it may be connected to any suitable high quality audio source component and loudspeaker system.

PACKING LIST AND UNPACKING THE EQUIPMENT

The system as supplied comprises one QUAD QC – *twenty four* preamplifier and two QUAD II – *forty* monobloc power amplifiers.

The QUAD QC – *twenty four* preamplifier carton contains:

- QUAD QC – *twenty four* valve preamplifier
- One 2m long IEC mains lead fitted with an appropriate mains connector
- Instruction Manual
- Warranty Registration Form

Each QUAD II – *forty* amplifier carton contains:

- QUAD II – *forty* valve power amplifier
- One 2m long IEC mains lead fitted with an appropriate mains connector
- One set of packing materials.

Consult the dealer from whom you purchased the equipment if any of these items is not present.

Please retain the packing materials for future use or return them to your dealer. If you decide not to keep the packing, please dispose of it sensibly. The paper and plastics components are recoverable and may be taken to an appropriate recovery service.

Please retain the user manual and the information concerning the date and place of purchase of this equipment for future reference.

Important Note:

As there is a large number of possible installation configurations, QUAD has taken the decision not to supply interconnects with this product. You will require two screened interconnect cables terminated with RCA phono plugs to connect the two QUAD II – *forty* monobloc power amplifiers to the QUAD QC – *twenty four* preamplifier control unit. Please discuss your individual requirements with your QUAD appointed dealer and be guided by his advice.

Recording, Monitoring and Playback

- Selecting either Tape 1 or Tape 2 enables you to play any audio equipment connected to that input in the same way as the other high level inputs.
- When you select any source from CD, Tuner, Phono, Aux 1 or Aux 2, the selected source is also connected to the Record outputs of both Tape 1 and Tape 2 so you can record the programme simultaneously on two recording units in addition to listening via loudspeakers.
- If you own a three head tape recorder, by pressing the relevant Tape Monitor button e when playing any high level source input you can compare the quality of the recording with the original programme at the instant of making the recording.
- When you play back a recording using either Tape 1 or Tape 2, the record output to the other Tape unit is disabled. In other words, you cannot make a recording using a recorder connected to Tape 1 and then re- record it onto a unit connected to Tape 2, or vice versa. *

Selecting and Deselecting Inputs

- Select any high level input source from CD, Tuner, Phono, Aux 1 or Aux 2. Change your selection and the selector will deselect that input and select the new one.
- If you select Tape 1, you will not be then able automatically to select Tape 2. You must first deselect Tape 1 by pressing it again and then you may select Tape 2 (and vice versa).

Volume and Balance Controls

The Volume control h on the QUAD QC – *twenty four* is a carefully chosen precision component with exceptional accuracy and close tracking between channels. It is virtually silent in operation. Rotate the Volume Control clockwise to increase the volume and counter clockwise to decrease it.

When the Volume control is fully anti-clockwise the unit is effectively off and there is no 'knee' in the response if you operate it low down the scale.

The Balance Control g operates as a true Balance Control, altering the Left- Right Balance by 6 dB in either direction. The control itself is unusual in that in the centre position it is effectively bypassed thus ensuring true transparency of operation.

Avoid rapidly swinging these controls and operate the Balance Control close to the midpoint for best sonic results.

Switching Off

When you switch off the equipment, turn the Volume control to minimum before switching off the system. The preamplifier should be switched off last.

**When recording from one recorder to another, connect the unit that will provide the signal to be recorded as follows:*

- Connect the REC or LINE IN sockets to the REC outputs (1 or 2) of the QC – *twenty four.*
- Connect the LINE OUT or PLAY sockets from this unit to a spare high level input, e.g. Aux 1.
- When you select the chosen input (e.g. Aux 1) this signal may now be recorded on the other recording unit.

Note: *This procedure should not be used with a three head tape unit.*

QUAD

QC · *twenty four*

II · *forty*

INSTRUCTION MANUAL

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Your QUAD valve amplification requires special care with installation and operation if it is to function to its full potential.

Please read these instructions thoroughly before installing this equipment.

Overall volume levels

Output levels from different audio source components in a high fidelity system often vary dramatically. For instance, it is not unusual for a CD player to produce levels significantly higher (18 dB and more) than an FM tuner. So, always turn the volume control down before changing sources as the resulting surge could damage your loudspeakers.

It follows that the position of the volume control is not an infallible guide as to 'how loud' the equipment will go. Though the overload characteristics of the QUAD II – *forty* are such that you will be able to play your music at surprisingly high levels, if the sound is distorted, you are probably overloading your equipment whatever the position of the volume control.

Damping Factor

Damping Factor is the ratio of a loudspeaker's nominal impedance divided by the output impedance of the amplifier. Because they use output transformers and much lower levels of overall negative feedback, valve amplifiers have modest damping factors compared with solid-state amplifiers. The Damping Factor of the QUAD II – *forty* is 20 into 8 Ohms at 700 Hz. This is entirely suitable for virtually all modern loudspeakers and, of course, ideally suited to QUAD Electrostatic loudspeakers.

No damage can result through connecting a loudspeaker to the incorrect terminal on the amplifier but the sound will be less dynamic and powerful.

Retrospect and Prospect

Apart from a very few specialised fields such as high power transmitters, the valve has been obsolete in almost every walk of life for at least thirty years and yet, it remains the equipment of choice for thousands of music lovers and audiophiles the world over.

Audio amplification has been with us for almost ninety years and for over fifty of those ninety, the name of QUAD has been synonymous with the very best the world has to offer. In producing the QUAD II – *forty* and QC – *twenty four*, our first new valve equipment for over thirty years, we have re-visited the very roots of our being. We hope the result lives up to your highest expectations.